

1. (amended) A system for allocating processing resources to functions in a queue waiting to be executed, comprising:

a processor having a queue for holding a plurality of executable functions including:

a capacity determining means for determining an amount of the processing resources that are available to be assigned;

a load determining means for determining an estimate of the processing resources that are needed to execute each function waiting in the queue;

an allocating means for allocating the processing resources to the functions based on a hierarchical priority scheme;

A<sub>1</sub> a measuring means connected to the processor for measuring an actual amount of the processing resources used;

a revising means for revising the estimate of the amount of processing resources needed to execute each function waiting in the queue based on the measured amount of the processing resources used; and

a reallocating means for reallocating the available amount of processing resources to the functions in accordance with the revised estimate and the hierarchical priority scheme.

2. (amended) The system of claim 1, further comprising:

a comparing means for comparing the sum of the measured amount of processing resources used to a high and a low threshold value;

an alarming means interconnected with the processor for setting an alarm if the sum of the measured amount of processing resources used exceeds the high threshold value; and removing the alarm if the sum of the measured amount of processing resources used is less than the low threshold value.

3. (amended) The system of claim 2, further comprising:

a throttling means for assigning a resource throttling value to each function waiting in the queue to be executed when the alarm is set, wherein the throttling value determines the reduction of the processing resources allocated to each of the functions.

4. (amended) The system of claim 2, further comprising:  
a reducing means for reducing a number of instances for which a particular function may execute concurrently when the alarm is set.

5. (amended) A system for allocating processing resources to functions in a queue waiting to be executed, comprising:

a processor having at least one communication port;

at least once communication channel connected to each of said at least one communication port;

A, a capacity determining means for determining an amount of processing resources available to be assigned;

a load determining means for determining an estimate of processing resources needed to execute each function waiting in the queue;

an allocating means for allocating the processing resources to the functions based on a hierarchical priority scheme;

a measuring means connected to the processor for measuring an actual amount of the processing resources used;

a revising means for revising the estimate of the amount of processing resources needed to execute each function waiting in the queue based on the measured amount of the processing resources used; and

a reallocating means for reallocating the available amount of processing resources to the functions in accordance with the revised estimate and the hierarchical priority scheme.

6. (amended) The system of claim 5, further comprising:

a comparing means for comparing the sum of the measured amount of processing resources used to a high and a low threshold value;

an alarming means interconnected with the processor for setting an alarm if the sum of the measured amount of processing resources used exceeds the high threshold value and removing the alarm if the sum of the measured amount of processing resources used is less than the low threshold value.

7. (amended) The system of claim 6, further comprising:

A1  
concl.  
a throttling means for assigning a resource throttling value to each function waiting in the queue to be executed when the alarm is set, wherein the throttling value determines the reduction of the processing resources allocated to each of the functions.

8. (amended) The system of claim 6, further comprising:

a reducing means for reducing a number of instances for which a particular function may execute concurrently when the alarm is set.

---

#### New Claims:

---

9. A system for allocating processing resources to functions in a queue waiting to be executed, comprising:

a computer that receives data signals;

a processor for said computer that is programmed to:

determine an amount of the processor resource available to be assigned;

A2  
determine an estimate of an amount of the resource needed for each function waiting in the queue to execute; and

allocate the available resource to the functions based on a hierarchical priority scheme.

10. The system of claim 9, wherein:

the functions are decomposed elements of a more complex process and do not require the same amount of resource to execute.

11. The system of claim 10, wherein:

the processor invokes multiple instances of any function to execute concurrently.

12. The system of claim 11, wherein:

the processor assigns each of the functions a separate priority within the hierarchical priority scheme.

13. The system of claim 12, wherein:

the processor assigns each instance of each function a separate priority within the hierarchical priority scheme.

14. The system of claim 10, further comprising:

the processor assigns a resource throttling value to each function waiting in the queue to be executed, wherein the throttling value determines the reduction of the resource allocated to each of the functions.

15. The system of claim 9, wherein:

the allocation of the available resource to the functions waiting in the queue by the processor is conducted to optimize the amount of the resource assigned to these functions.

16. The system of claim 9, wherein:

the allocation of the available resource to the functions waiting in the queue by the processor is conducted to optimize a combined number of instances of each function concurrently executed.

17. The system of claim 9, further comprising:

the processor is programmed to:

measure the actual amount of the resource used;

revise the estimate of the amount of the resource needed for each function waiting in the queue to execute based on the measured amount of the resource used; and

reallocate the available amount of the resource to the functions in accordance with the revised estimate and the hierarchical priority scheme.

18. The system of claim 17, further comprising:

the processor is programmed to:

Ar compare the measured amount of the resource used to a high and a low threshold value;

set an alarm if the measured amount of the resource used exceeds the high threshold value; and

remove the alarm if the measured amount of the resource used is less than the low threshold value.

19. The system of claim 18, further comprising:

the processor assigns a resource throttling value to each function waiting in the queue to be executed when the alarm is set, wherein the throttling value determines the reduction of the resource allocated to each function.

20. The system of claim 18, further comprising:

the processor reduces the number of instances in which a particular function may execute concurrently when the alarm is set.

21. The system of claim 13, further comprising:

the processor is programmed to:

measure the actual amount of the resource used;

revise the estimate of the amount of the resource needed for each function waiting in the queue to execute based on the measured amount of the resource used; and

reallocate the available amount of the resource to the instances in accordance with the revised estimate and the hierarchical priority scheme.

22. The system of claim 21, further comprising:

the processor is programmed to:

compare the measured amount of the resource used to a high and a low threshold value;

set an alarm if the measured amount of the resource used exceeds the high threshold value; and

remove the alarm if the measured amount of the resource used is less than the low threshold value.

23. The system of claim 22, further comprising:

the processor assigns a resource throttling value to each instance of each function waiting in the queue to be executed when the alarm is set, wherein the throttling value determines the reduction of the resource allocated to each instance of each of the functions.

24. The system of claim 22, further comprising:

the processor reduces the number of instances in which a particular function may execute concurrently when the alarm is set.

A2  
concl.